



## CUSTOMER

Nutrilab has existed for more than 60 years as the quality assurance laboratory of the Schouten Group, which celebrated its 125th anniversary in 2018. Becoming an independent commercial laboratory in 1990, Nutrilab specializes in protecting quality and ensuring the safety of an increasingly global food supply chain.

## CHALLENGE

“We needed new technologies able to handle the growth in sample workload and to get complete digestion in a safe lab environment.”

## SOLUTION

“In 2015, we invested in an ETHOS UP microwave digestion system from Milestone to help reduce our sample prep bottleneck. This system increased the sample digestion capacity of our laboratory by 50%, while reducing costs, and significantly improving digestion quality.”

## BACKGROUND

While there are laws and regulations guiding food companies, it is important that they also assume the responsibility of producing and processing safe food. Nutrilab, which is specialized in feed and food analyses, strives to assure the highest safety standards. By implementing new technologies and procedures such as microwave digestion of samples for elemental analysis and LC-MS/MS analysis for allergens, they are at the forefront of increasing efficiency in food testing laboratory analyses.

## MEETING REGULATIONS

“It is fundamental to comply with European requirements in the area of chemical and microbiological contaminants in food, feed and pet food. It is up to the producer to directly assess foodstuff, or to decide to outsource analyses to commercial laboratories such as ours” says Pieter Vos, director of the Nutrilab based in Giessen, Holland.

“But meeting regulations is not enough from our point of view. Companies must also be aware that they have their own responsibility to bring safe food to the market.

A supervisory authority is always remote; companies, on the other hand, know where the risks are, what they need to look out for and what kind of preventive measures they can take. Our role in this mainly concerns measuring and analyzing, but it is not limited to only this. We are strongly involved in the whole process to investigate possible causes of contamination with the final goal of working together to achieve the highest levels of food safety.”

# LAB PROFILE ETHOS UP | FOOD



## | EFFICIENT SAMPLE PREPARATION

Partnering with the customer includes delivering the most efficient analysis possible, resulting in cost savings, improved turnaround time and reliability. "We at Nutrilab are constantly looking for ways to achieve that. This is possible through the development of new methods, optimization of processes and development of new services", says Bart van der Nagel, who has been working as R&D manager at Nutrilab for more than a year.

In terms of efficiency, Nutrilab is currently taking a big hit in the field of sample preparation for elemental analysis. "We have been using ICP-OES for elemental analysis for years. However with recent developments in regulations such as lowering the standard for cadmium in food, we need the ability to achieve lower detection limits.

Moreover, we also want to detect heavy metals in baby food, where the standards are even stricter. We have therefore invested in an ICP-MS for the trace analysis of contaminants such as arsenic, cadmium and lead. For the determination of mercury we have a separate mercury analyzer. The ICP-OES is now mainly used for measuring minerals" says Bart.

*"We are also getting more and more samples to analyze: we are gaining new customers and are also increasing the number of requests from existing customers."*



*R&D manager Bart van der Nagel with Milestone's ETHOS Up microwave digestion system with which Nutrilab performs the digestion of samples for ICP-OES element analysis and ICP-MS contaminant analysis.*

## | MICROWAVE DIGESTION

Sample preparation for elemental analysis was previously performed using open-vessel digestion systems. This technology required long sample preparation time (up to two hours) and did not offer ideal working conditions for the analysts as they were directly exposed to acid vapors. Moreover, relatively large quantities of sample and chemicals were needed to get complete dissolutions.

In 2015, Nutrilab implemented microwave digestion technology in their lab. This technique offers several advantages:

- Samples are weighed directly into the vessel, suitable reagents are introduced and the vessel closed, resulting in full recovery of volatile elements.
- With microwave digestion, the sample is heated from the inside, providing a more even heating than with open vessel methods.

Sample preparation with microwave technology is also faster. With Milestone's ETHOS UP, which was supplied by Salm and Kipp, the microwave program lasts between fifteen and twenty minutes. Including cooling, the total time for fourteen samples (plus one blank) that fit in the rotor is one and a half hours. This is time not wasted, because during the program running time, the analyst can start with the preparations of the next run.

The ETHOS UP can accommodate different programs based on the temperatures and/or powers you want to achieve, enabling the optimized digestion of specific matrices.

Because the ICP-MS will also be added in the short term, the Milestone ETHOS UP will be used more and more. "With three important lines of analysis, sample preparation should not become a bottle-neck.

Moreover, they are also receiving more and more samples to analyze: "We are gaining new customers and are also increasing the number of requests from existing clients."

## | ABOUT MILESTONE

With over 50 patents and more than 20,000 instruments installed in laboratories around the world, Milestone has been widely recognized as the global leader in metals prep technology for the past 30 years. Committed to providing safe, reliable and flexible platforms to enhance your lab's productivity, customers worldwide look to Milestone for their metals digestion, organic extractions, mercury analysis and clean chemistry processing needs.



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